

## REMARKS

### 1. The Amendments and the Support Therefor

No claims have been canceled, four new claims (19-22) have been added, and claims 2 and 14 have been amended to leave claims 1-15 and 18-22 in the application. Payment for any newly-submitted claims in excess of the amount previously paid for should accompany this Response, as per 37 CFR §1.16(b)-(d), with the fee due being calculated as follows:

#### FEE CALCULATION

For	Already Paid	No. Extra	Rate (SMALL ENTITY)	Fee (SMALL ENTITY)
Total Claims	20 - 20 =	0	x \$26 =	\$0
Independent Claims	4 - 3 =	1	x \$110 =	\$110
Total:				\$110

No new matter has been added by the amendments or new claims, wherein:

- **Claim 2:** Finds support at (for example) Figure 2.
- **Claim 14:** Finds support in claim 1.
- **Claim 19:** Finds support in claims 1 and 10.
- **Claim 20:** Finds support in claim 2 and FIG. 2 of the application.
- **Claim 21:** Finds support in claim 2 and column 5 lines 19-25 of the application (corresponding to par. [0022] of US Publ'n. 2008/0234600).
- **Claim 22:** Finds support in claim 10.

Further comments regarding the new claims are set out below at Section 9.

### 2. Priority

Regarding the request for a specific reference to the prior-filed application as the first sentence of the specification following the title, please note that this application is a filing under 35 USC §371, not a filing under 35 USC §365(c), §120, or §121, and therefore it is not necessary to reference the prior-filed application in the first sentence of the specification following the title. See MPEP 1893.03(c):

Note: a national stage application submitted under 35 USC 371 may not claim benefit of the filing date of the international application of which it is the national stage since its filing date is the international filing date of the international application. See also MPEP §1893.03(b). Stated differently, since the international application is not an earlier

application (it has the same filing date as the national stage), a benefit claim under 35 USC 120 in the national stage to the international application is inappropriate and may result in the submission being treated as an application filed under 35 USC 111(a). See MPEP § 1893.03(a). *Accordingly, it is not necessary for the applicant to amend the first sentence(s) of the specification to reference the international application number that was used to identify the application during international processing of the application by the international authorities prior to commencement of the national stage.*

(Emphasis added.) In short, it is believed that the application is in compliance with all 35 USC §371 and 37 CFR §1.78 priority requirements, and no further reference to the international application is needed. If the request for the reference is maintained, kindly indicate where 37 CFR §1.78 requires such reference in light of the comments of MPEP 1893.03(c) above.

### **3. Rejection of Claim 18 under 35 USC §112(1)**

Kindly reconsider and withdraw this rejection. Consider that the written description clearly describes performance of the functions / steps recited in claim 18; see, e.g., page 7 line 30-page 8 line 4 (corresponding to pars. [0046]-[0051] of US Publ'n. 2008/0234600):

According to another aspect of the present invention, there is provided a method of measuring hydration of a subject comprising the steps of:  
measuring an initial core body temperature of the subject;  
measuring a subsequent current core body temperature of the subject;  
subtracting the initial core body temperature from the subsequent core body temperature;  
]multiplying by the subject's weight; and,  
dividing by a factor of ambient compensation.

The written description also notes that the steps are performed by a “processor” – see, e.g., page 8 line 24 onward, corresponding to par. [0059] of US Publ’n. 2008/0234600<sup>1</sup> – with FIG. 1 showing transmission of temperature data from temperature sensor 20 to the processor 30 and display/output unit 40. Page 10 line 32 onward (corresponding to par. [0074] of US Publ’n. 2008/0234600) then notes that temperature data from a wristwatch temperature sensor can be sent to a “computer or other remote station, either via a wireless connection or via a docking station or other wired connection” for analysis and storage.

Given that the written description describes the steps used to measure hydration, and states that the steps are performed by a processor / computer (and given that the steps are quite readily programmable by one of ordinary skill), it should be apparent that the matter of claim 18 is in fact enabled. The mere fact that “[t]he disclosure fails to mention the term ‘computer code’ or even a ‘computer program’” does not mean that the claimed matter lacks enablement, since the Court of Appeals for the Federal Circuit has long made it clear that there is no requirement that a claim recitation have *ipsis verbis* support in the specification to comply with §112(1) – in other words, the same language need not be used. As noted in *Kennecott Corp. v. Kyocera International Inc.*, 5 USPQ2d 1194, 1197 (Fed. Cir. 1987), both the CAFC (and its predecessor court, the Court of Customs and Patent Appeals) “has long recognized that an invention may be described in different ways and still be the same invention.” The holding of *Kennecott* is then summarized in MPEP 2163.07(a):

By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); *In re Smythe*, 480 F. 2d 1376, 178 USPQ 279 (CCPA 1973).<sup>2</sup>

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<sup>1</sup> Also see page 10 line 2, corresponding to par. [0070] of US Publ’n. 2008/0234600, noting use of “a processor to perform the calculations discussed above”.

<sup>2</sup> See also *Schering Corp. v. Amgen Inc.*, 222 F.3d 1347, 1352, 55 USPQ2d 1650, 1653 (Fed. Cir. 2000) (“The fundamental inquiry is whether the material added by amendment was inherently contained in the original application.”); *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.*, 60 USPQ2d 1017, 1023 (Fed. Cir. 2001) (“In order for a disclosure to be inherent, ‘the missing descriptive

Here, the application describes a processor / computer and the steps / functions performed, and any programmer of reasonable skill could program the processor / computer to perform the recited steps.<sup>3</sup> Further, as noted in *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 94 (Fed. Cir. 1986):

Enablement is a legal determination of whether a patent enables one skilled in the art to make and use the claimed invention, and is not precluded even if some experimentation is necessary, although the amount of experimentation needed must not be unduly extensive, and is determined as of the filing date of the patent application.... Furthermore, a patent need not teach, and preferably omits, what is well known in the art.

The enablement determination is, at least superficially, a simple one: *regardless of the breadth of the disclosure, would one of ordinary skill know how to make and use the invention as claimed?* See, e.g., *Bayer AG v. Schein Pharmaceuticals Inc.*, 64 USPQ2d 1001, 1006 (Fed. Cir. 2002) (“Because an enabling disclosure by definition turns upon the objective understanding of a skilled artisan, the enablement requirement can be met by reference to the knowledge of one of ordinary skill in the relevant art”); *In re Wright*, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993) (“Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples”). Here, we submit that it is not reasonably disputable that an ordinary artisan would, on the basis of the specification’s discussion of the performance of the recited steps of claim 18 by a “processor” or a “computer,” readily realize that the subject matter of claim 18 was in applicant’s possession at the time the application was filed, and would readily know how to program/implement the claimed matter. In short, claim 18 is enabled. Kindly withdraw the rejection.

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matter must necessarily be present in the application's specification such that one skilled in the art would recognize such a disclosure.’) (quoting *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159, 47 USPQ2d 1829, 1834 (Fed. Cir. 1998)); *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991) (“[T]he test for sufficiency of support... is whether the disclosure of the application relied upon ‘reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.’”) (quoting *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985)).

<sup>3</sup> See particularly page 7 lines 15-18, corresponding to par. [0062] of US Publ’n. 2008/0234600:  
The calculation performed by the processor is carried out at regular intervals as follows:  
[(core body temperature current-core body temperature normal) x weight]  
/ (factor of ambient compensation x 100)

#### **4. Rejection of Claims 1-15 and 18 under 35 USC §112(2)**

These rejections raise several points, each of which will be taken in turn. The rejections initially state:

Regarding claims 1-15 and 18, it is indefinite what hydration level is being determined. Examiner notes that hydration level could be one of several things, some examples are as follows: (a) hydration level prior to physical activity to determine how much hydration is required to ensure hydrated physical activity; (b) hydration level during physical activity to ensure that hydration level remains at an appropriate level; (c) hydration level after physical activity to ensure that a proper hydration levels are replenished. As demonstrated in (a) through (c), it is unclear what exactly the hydration level is because it is not known if it is simply an instant hydration reading of the body or is it a level of hydration required for proper physical activity.

This ground for rejection is flawed in two respects. First, upon a full reading of the specification, the significance of the hydration measurement is quite clear. Note that since the invention plainly provides a hydration measurement based on changes in body temperature over time – see, e.g., page 7 lines 15-18 (corresponding to par. [0062] of US Publ’n. 2008/0234600, and reproduced at Footnote 3 above) – it effectively provides an instant hydration reading (as of the time of the latest temperature measurement). Further, the specification notes that it seeks to provide a measurement of “how much fluid [the subject] must drink to re-hydrate their body” (page 6 lines 1-6, corresponding to par. [0025] of US Publ’n. 2008/0234600), and of “body weight lost to water” (page 6 lines 8-9, corresponding to par. [0026] of US Publ’n. 2008/0234600). The resulting measurement can thus be regarded as either or both of a “hydration reading of the body” or “a level of hydration required for proper physical activity,” since one effectively indicates the other. Consider, for example, if one starts with a measurement of 0 and after a period of exercise the measurement stands at 0.5: this can indicate either or both that (1) one has lost approximately 0.5 liters and is dehydrated to that degree, and/or (2) one should drink approximately 0.5 liters.

Second, even if the significance of the recited “hydration level” is not clear (i.e., even assuming a reader would not know which of the “hydration levels” noted in the Office Action are being referred to), this is not the proper basis for a §112(2) rejection. All that 35 USC §112(2) requires is that an ordinary artisan would know what is included within the claims, and what is excluded by the claims, when the claims are read in light of the specification. As noted by the Court

of Appeals for the Federal Circuit in *Miles Laboratories Inc. v. Shandon Inc.*, 27 USPQ2d 1123, 1126 (Fed. Cir. 1993):

The "distinctly claiming" requirement [of 35 USC §112(2)] means that the claims must have a clear and definite meaning when construed in the light of the complete patent document. ... Section 112 thus ensures definiteness of claim language. ... The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. ... If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, Section 112 demands no more.

(Citations omitted.) Or, as simply stated by MPEP 2173.02, the claims must “provid[e] clear warning to others as to what constitutes infringement of the patent.” Further, as noted in the foregoing quote, a claim must be read in light of its specification to determine whether it is definite. See also *Howmedica Osteonics Corp. v. Tranquil Prospects Ltd.*, 74 USPQ2d 1680, 1683 (Fed. Cir. 2005) (“[t]he definiteness of a patent claim depends on whether one skilled in the art would understand the bounds of the claim when read in light of the specification”); MPEP 2173.02 (“Definiteness of claim language must be analyzed, not in a vacuum, but in light of . . . [t]he content of the particular application disclosure . . .”). Here, we submit that it cannot reasonably be disputed that an ordinary artisan reading claims 1-15 and 18 would understand whether accused matter falls within or outside of the claims, regardless of whether they understood the significance of the hydration measurement attained. Some of the claims may be broad, but breadth does not equal indefiniteness; see MPEP 2173.04.

The rejections then go on to state:

Furthermore, the hydration monitor and equations to appear in claims 10, 11, 14 and 18 appears to only recite a hydration level determined by a vague equation. The validity of such determination of hydration by the equation is questioned by the Examiner, as many other factors that influence hydration levels including a subject's height, subject's age, subject's sex, subject's body fat content, subject's initial hydration level, subject's health status, subject's diet, et al., have not been considered in the equation. Additionally, evidence, calculations and empirical evidence are not found in the specification to allow the Examiner to determine why such calculation does not require additional body factors or why the equation is anything other than a rough calculation of a subject's hydration level. The Applicant's invention appears to simply use temperature readings to measure hydration levels without taking into account many other particular hydration factors. Therefore, the equation appears to be an ambiguous equation for determining an approximation or best guess of the subject's hydration level.

Again, this does not state why / how one of ordinary skill would not understand what the claim covers; rather, it appears to complain that the accuracy / precision of the hydration measurement are questioned. *This is not a requirement of §112(2)*. As noted above, “[i]f the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, Section 112 demands no more.”<sup>4</sup> The equation for calculation is indisputably *not* vague: it is quite clear, and may be readily understood and practiced by any reader.

The rejections also complain that:

Lastly, it is unclear what the ambient compensation factor is as the specification recites two definitions:

d) The factor of ambient compensation may be between 0.1 and 0.23 and is determined in dependence on the temperature of the environment surrounding the subject [0043];

e) The factor of ambient compensation is valued between 0.1 and 0.23 degrees centigrade, and refers to the increase in the subject's core body temperature for every percent loss of body weight, in temperate and hot climates respectively [0064].

Additionally, both definitions and respective descriptions in the specification fail to establish how the factor of ambient compensation is determined because it is not disclosed how the factor between 0.1 and 0.23 degrees centigrade is chosen. One having ordinary skill in the art would not understand how to use the equation since he/she would not know how to pick the ambient factor between 0.1 and 0.23.

Note that these definitions / descriptions are not mutually exclusive: they both accurately describe the preferred ambient compensation factor. Further, note that the ambient compensation factor is a constant in the equation set forth at page 7 lines 15-18 (corresponding to par. [0062] of US Publ’n. 2008/0234600, and reproduced at Footnote 3 above): all it does is scale the output reading. Thus, it does not matter whether one sets the ambient compensation factor at 0.1, at 0.23, or at some number in between: one will still get an output hydration measurement having a magnitude indicative of hydration. Naturally, if one wishes to calibrate the output hydration measurement to one “with a realistic accuracy of 0.5-1.0% BWL (body weight lost in water)” (page 6 lines 8-9, corresponding to par. [0026] of US Publ’n. 2008/0234600), one will need to choose a proper value for the ambient compensation factor between 0.1 and 0.23. However, determining this proper value

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<sup>4</sup> In any event, if accuracy / precision is a concern, it is recommended that the Background of the Invention be reviewed for its discussion of how a wide range of factors can affect (or can be indicative of) hydration, but the invention is addressed to a non-intrusive and practical means of obtaining a hydration measurement.

is a matter of routine experimentation, and in no way negates the fact that one obtains an output hydration measurement having a magnitude indicative of hydration regardless of what is the chosen value of the ambient compensation factor. In any event, here too the rejections are not addressed to whether and why an ordinary artisan would or would not understand the scope of the claims – again, it seems beyond dispute that an ordinary artisan would understand what the claims encompass – and thus they do not constitute proper §112(2) rejections, and should be withdrawn.

**5. Rejection of Claims 14, 15 and 18 under 35 USC §101**

Claim 14 has been amended to tie the recited method to a particular apparatus (a hydration monitor), and should therefore be statutory as per §101 in accordance with *In re Bilski*, 545 F.3d 943, 88 USPQ2d 1385 (Fed. Cir. 2008).

Claim 18 is a *Beauregard* claim – i.e., a *product* claim (article of manufacture claim) directed to functional matter encoded on computer-readable media – and should therefore also be statutory as per §101, in accordance with MPEP 2106.01:

“[F]unctional descriptive material” consists of data structures and computer programs which impart functionality when employed as a computer component. . . . . When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

Further note that the Board of Appeals has confirmed in a post-*Bilski* decision that *Beauregard* claims of this nature can be statutory. See *Ex parte Bo Li*, Appeal 2008-1213, P. 9 (BPAI 2008) (“It has been the practice for a number of years that a ‘Beauregard Claim’ of this nature be considered statutory at the USPTO as a product claim.”).

**6. Rejection of Claims 1-9, 12 and 13 under 35 USC §102 in view of U.S. Patent 6,970,178 to Mault et al.**

Kindly withdraw the rejections of claim 1 and its dependent claims 9, 12 and 13. The rejection of *claim 1* reads as follows:

Regarding claim 1, Mault discloses a hydration monitor (see Fig. 18) comprising a temperature sensor (thermistor; col. 18, lines 6-10) for measuring a subject's core body temperature (col. 17, lines 9-11) and a processor (PDA), the processor being arranged to

accept measurements from the temperature sensor (col. 17, lines 11-16) and calculate a hydration level in dependence on changes in the measured core body temperature. Note that the PDA of Mault is capable of calculating hydration in dependence on changes in the measured core body temperature because the PDA monitors temperature of time and plots the subject's temperature over a time period (col. 17, lines 38-43).

However, anticipation under 35 USC §102(b) requires that each and every limitation recited by the claim be found in a single prior art reference, with the limitations being arranged in the prior art reference in the same manner as claimed.<sup>5</sup> Here, *Mault et al.* does not “calculate a hydration level in dependence on changes in the measured core body temperature” as recited in claim 1, and the rejection appears to concede as much, as it merely states that “Mault is *capable of* calculating hydration in dependence on changes in the measured core body temperature” (emphasis added). However, this is not sufficient for anticipation under 35 USC §102(b). “The factual determination of anticipation requires the disclosure in a single reference of every element of the claimed invention. . . . It is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference.” *Ex parte Levy*, 17 USPQ2d 1461, 1462 (Bd. Pat. App. & Int. 1990); see also 37 CFR §1.104(c)(2),<sup>6</sup> MPEP 707.07(d).

If the rejection is asserting that *Mault* inherently anticipates claim 1 (as per MPEP 2112), this too is incorrect, as MPEP 2112 states that “[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” Further, “[t]o establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be

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<sup>5</sup> MPEP 2131; *Brown v. 3M*, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) (“To anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim”); *Net MoneyIN Inc. v. VeriSign Inc.*, 88 USPQ2d 1751, 1758-1759 (Fed. Cir. 2008) (“We thus hold that unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 USC §102.”).

<sup>6</sup> “In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.”

so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” Here, there is no explanation as to why / how *Mault* necessarily calculates a hydration level.

It is also notable that given the Office Action’s own stated doubts as to whether body temperature can even be used to provide a measurement of hydration level (at pages 3-5 of the Office Action), it seems highly unlikely that an ordinary artisan would contemplate modifying *Mault* to obtain the claimed invention, and thus the invention of claim 1 is unobvious as well.

Regarding **claim 2**, which has been amended to more clearly indicate that an “earpiece” is a wearable device, *Mault*’s FIG. 18 and the cited column 17 line 67-column 18 line 10 plainly contemplate an ear thermometer of the conventional type (as shown in FIG. 18), and do not disclose or suggest a wearable earpiece.

Regarding **claim 3**, it is noted that *Mault*’s disclosure of a “thermistor” at column 18 lines 6-10 does not anticipate the claimed “thermopile.” While both are temperature sensors, they are nonetheless different devices. It is also notable that a thermistor is not believed to be nearly as well-suited for use in the invention as a thermopile, particularly in respect of its accuracy in determining core body temperature.

Regarding **claim 4**, *Mault* plainly does not disclose any “provi[sion of] an indication of the hydration level via the output means.” Similarly, regarding **claim 13**, *Mault* plainly does not disclose any “alarm upon determination of a hydration level below a predetermined level.” As discussed above, *Mault* does not describe or suggest calculation, output, or other activity in relation to hydration level.

**7. Rejection of Claims 10, 11, 14, and 18 under 35 USC §103(a) in view of U.S. Patent 6,970,178 to *Mault et al.* and EP 1177763 to *Takehara et al.***

*Takehara* plainly determines hydration status on the basis of bioelectric impedance (see, e.g., par. [0009]) – unlike the claimed invention – and only uses body temperature to correct the measured bioelectric impedance (see par. [0011]) owing to the skewing effect that body temperature can have

(as described at par. [0007]). With reference to FIG. 4 and par. [0026] onward, the *Takehara* device is shown measuring bioelectric impedance across a user's body – between a user's hands – while measuring temperature off of one hand for purposes of correcting bioelectric impedance.

The Office Action alleges that:

One having ordinary skill in the art at the time the invention was made would have found it obvious to use the method of detecting the hydration status of *Takehara* with the device of *Mault*. Note that *Takehara* teaches a method that takes into account several bodily factors to determine a hydration status, such a method is equivalent with the claimed calculations because they both produce an equivalent and practical result for determination of hydration status (*Takehara*: see Abstract).

This is plainly incorrect. *Takehara* calculates hydration on the basis of bioelectric impedance, with temperature being used as a correction factor.<sup>7</sup> *Mault* simply measures temperature. It is simply not seen how one could use *Takehara* and *Mault* to arrive at the claimed invention, and the Office Action provides no valid explanation as to how this could be done. As noted by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (U.S. 2007), the obviousness analysis “should be made explicit . . . .rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” See also MPEP 2141 (quoting *KSR* for the foregoing principle). Here, while the Office Action contends that the claimed method is “equivalent: with *Takehara*'s, this is only true insofar as the claimed method and *Takehara* both devise a hydration measurement. *Beyond that, there is no explanation whatsoever as to why an*

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<sup>7</sup> It is notable that bioelectric impedance is affected by a wide variety of factors in addition to body temperature, as discussed in Applicant's written description at page 4 lines 4-17 (corresponding to par. [0015] of US Publ'n. 2008/0234600):

Bio-electrical Impedance Analysis (BIA) is another technique that has been suggested for use in measuring hydration. BIA analyses the amounts of fat, muscle and water in the body. The measure of hydration is separated into intracellular and extra cellular fluid compartments. BIA works by sending a small current through electrodes attached to the skin, normally on the hand and the foot. The current is sent at two different levels, one that can penetrate the cells of the body and one that cannot. The difference between the two provides an indication of the hydration status, on the theory that fluid facilitates the conduction of current. Currently, BIA results are affected by numerous variables including body position; hydration status; consumption of food and beverages; ambient air and skin temperature; recent physical activity; and the conductance of anything in contact with the skin, other than the electrodes. Thus, BIA lacks the precision and accuracy necessary for hydration monitoring, and it is doubtful that it could ever be adapted for use to determine fluid levels during even gentle exercise.

*ordinary artisan who has no knowledge of the claimed invention would in fact contemplate the claimed invention after reviewing Takehara and Mault* – and we submit that no valid explanation can be devised. *Takehara* would plainly lead one to use bioelectric impedance to determine hydration, and *Mault* would do no more than suggest additional arrangements for sensors and display units (e.g., wireless transmission of sensor data to a PDA). However, it is simply not seen how one would come up with the claimed matter – in particular, the arrangements of claims 10 and 11 – after review of *Takehara* and *Mault*, considered alone or in conjunction with the ordinary knowledge in the field. If the rejections are maintained, kindly provide the “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” required by *KSR*.

#### **8. New Claims 19-22**

New claim 19 is submitted to be allowable for at least the same reasons as the claims discussed above: there is no disclosure in the prior art of a hydration monitor, much less a wearable one, which calculates hydration from body temperature. Claim 19 also recites that hydration level is calculated without reliance on any measured electrical properties of the body, thereby further distancing from *Takehara*.

New claims 20-22 are submitted to be allowable for at least the same reasons as their parent claim 19, and also because:

- There is no disclosure of, nor any fair suggestion of, a wearable earpiece temperature sensor as recited in claim 20;
- Obtaining measurements *only* from the earpiece, as recited in claim 21, is unobvious in view of *Takeda* since bioelectric impedance measurements must be taken across a length of the body – e.g., between two hands, or between a hand and a foot – for any reasonable accuracy, as per discussions in *Takehara* (and in the Applicant’s own background section). Thus, it could not be reasonably expected that measurements obtained only from the ear – a small area of the body – could yield any usable measure of hydration.
- Claim 22 is novel and unobvious because the art of record does not disclose, nor does it fairly suggest, determination of hydration level based on changes in body temperature.

**9. In Closing**

If any questions regarding the application arise, please contact the undersigned attorney. Telephone calls related to this application are welcomed and encouraged. The Commissioner is authorized to charge any fees or credit any overpayments relating to this application to deposit account number 18-2055.

For the Applicant,



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